Go To Operation Section

# INSTALLATION INSTRUCTIONS
# for the
# *Biltmore Chair*

## SECTION I - REQUIREMENTS


1. PHYSICAL REQUIREMENTS ..... 1
2. ELECTRICAL REQUIREMENTS ..... 1


## SECTION II - INSTALLATION


1. UNPACKING THE CARTONS ..... 2
2. UNPACKING THE CHAIR ..... 2
3. INSTALLING THE CHAIR BACK ..... 3
4. REMOVING CHAIR FROM PALLET ..... 4
5. INSTALLATION OF PLATFORM COVERS ..... 4
6. INSTALLATION OF STANDARD MAGNETIC HEADREST AND CUSHION ..... 5
7. INSTALLATION OF CHAIR SEAT UPHOLSTERY ..... 6
8. INSTALLATION OF CHAIR BACK UPHOLSTERY ..... 6
9. INSTALLATION OF ARMREST ..... 7
10. INSTALLATION OF OPTIONAL EQUIPMENT ..... 7


## SECTION III - OPERATIONAL CHECKS


1. ROTATION LOCK RELEASE ..... 8
2. FOOT CONTROL OPERATION ..... 8


## SECTION IV - FINAL CHECK LIST


FINAL CHECK LIST ..... 9

Return To Table Of Contents

Return To Table Of Contents

# INSTALLATION INSTRUCTIONS for the *Biltmore Chair*™

## SECTION I - REQUIREMENTS

### 1. PHYSICAL REQUIREMENTS

Before installing the chair ensure that the physical requirements are met (See Figure 1). The chair should be at least 18 inches from the nearest wall, cabinet, or any permanent fixture when in the fully reclined position. Note that the chair seat moves forward 4-1/2 inches as the base is raised.

### 2. ELECTRICAL REQUIREMENTS

Before connecting the line cord to an appropriate receptacle, make certain that the circuit is protected by a 15-amp circuit breaker for 120-VAC models, or a 7.5-amp breaker for 240-VAC models. Ensure that all wiring is grounded and all electrical codes are observed.

**WARNING - Potential shock hazard with possible personal injury. To reduce shock hazard, observe all electrical codes.**

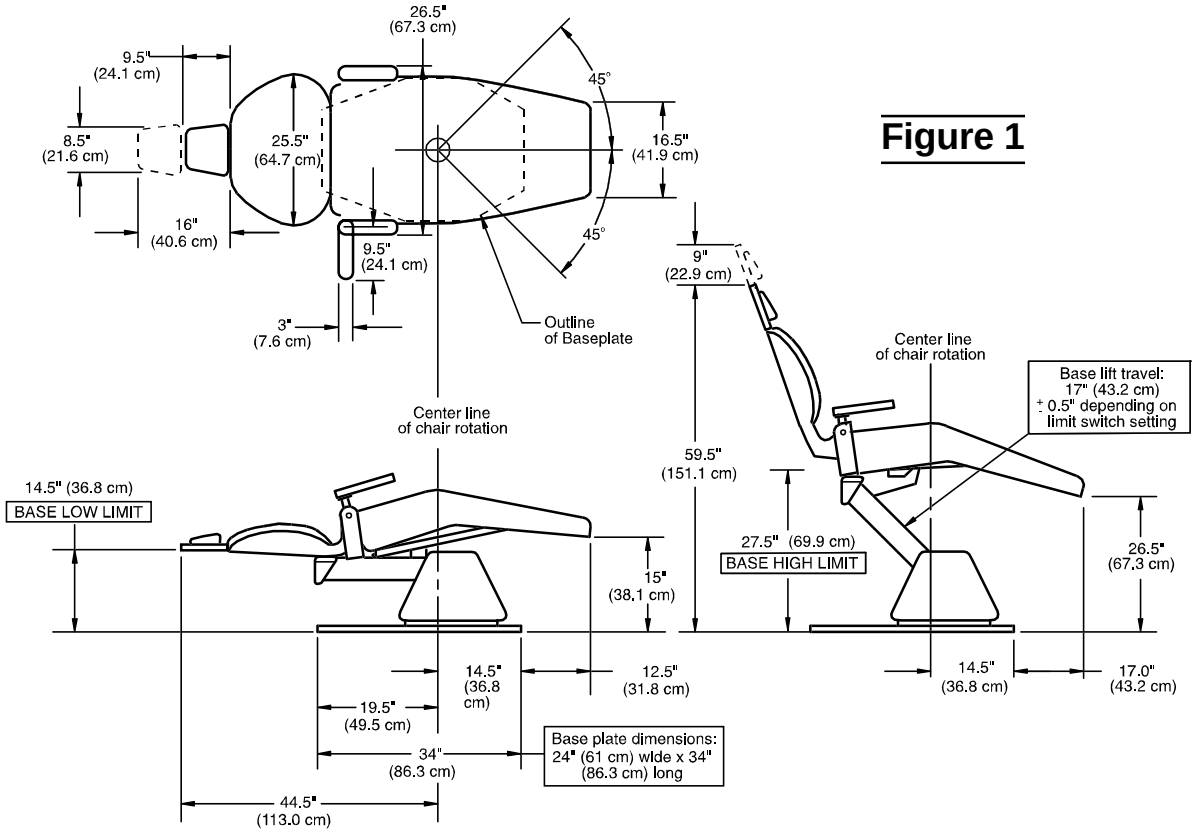



**Figure 1**

# SECTION II - INSTALLATION

## 1. UNPACKING THE CARTONS

The chair is shipped in two cartons, one large carton and a smaller carton, containing the following items:

**LARGE CARTON**

- Chair mounted on a pallet with backrest disconnected
- Plastic bag containing 3 platform covers and installation hardware
- Installation instructions (this manual) and operator's manual
- Foot Control

**SMALL CARTON**

- Seat Cushion
- Back Cushion
- A Set of Armrests
- Clear Vinyl Toeboard Cover
- Headrest and Cushion
- Hardware Kit

Check for signs of damage to either carton or to the contents and that all items listed above are present. If there is any evidence of damage due to shipping or if any of the items is missing from the cartons, notify the shipper at once. Be careful not to discard any small parts or instruction sheets with the packing material.

## 2. UNPACKING THE CHAIR

Use the following procedure to disconnect the chair from the pallet. Leave the chair on the pallet until the chair back has been installed.

1. Locate the foot controller and remove and discard the packing material.

2. Locate the two socket head cap screws and washers that secure the back of the chair to the pallet brace (see Figure 2). Using a 5/16-inch allen wrench, remove the two screws and washers.

3. Locate the two hex screws and two washers that secure the pallet cleat to the pallet, as shown in Figure 2. Using an adjustable wrench, remove the two screws and washers. Remove and discard pallet brace and cleat.

4. Locate the two nuts at the front of the chair base (beneath the upright housing cover) that secure the chair to the pallet. Using an adjustable wrench, remove the nuts, washers and bolts (see Figure 3).

5. Remove packaging material from the chair back and discard.

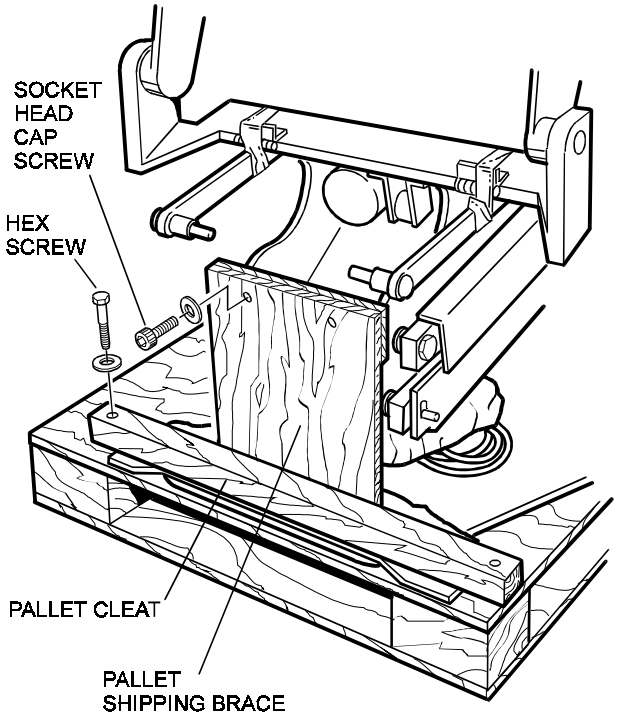



**Figure 2**

# SECTION II - INSTALLATION (CONT)

## 3. INSTALLING THE CHAIR BACK

To install the chair back, use the following procedure:

1. Remove any remaining packing materials, tape, etc., and discard them. Remove the tag from the seat frame.

2. Remove the pivot pins from the chair back clevis ends by loosening the set screw with a 1/8-inch allen wrench.

4. Align the tow bar bearings with the clevis and insert the pins on both sides as shown in Figure 4.

5. Tighten the each set screw to hold the pin in place. The set screw should be aligned with the groove in the pin.

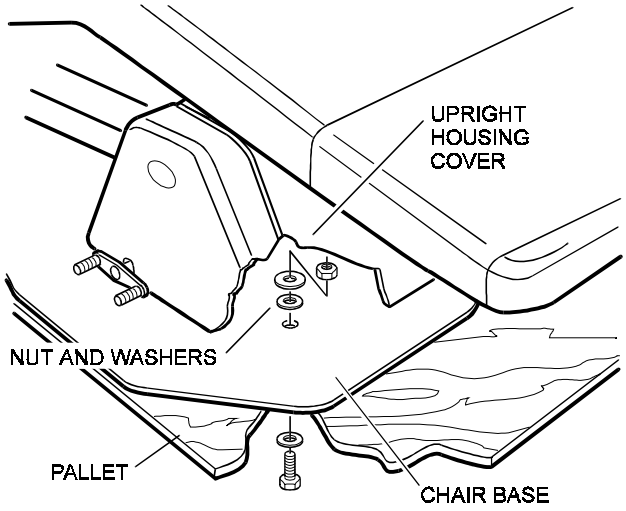



**Figure 3**

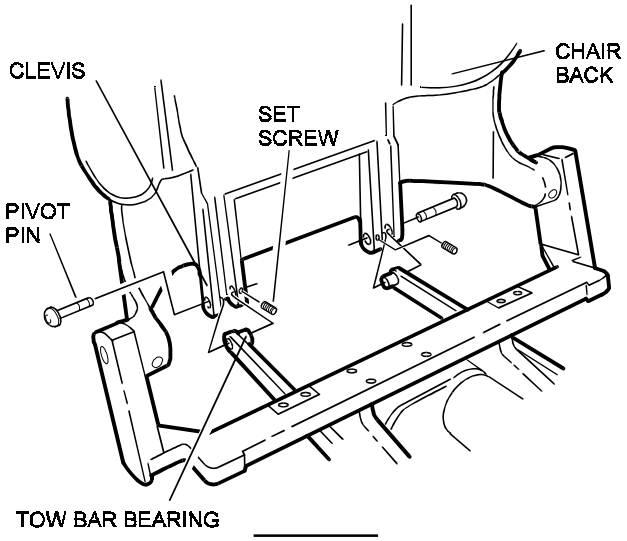



**Figure 4**

# SECTION II - INSTALLATION (CONT)

## 4. REMOVING CHAIR FROM PALLET

After the preceding steps are completed, the chair may be removed from the pallet and placed in the desired position on the floor. Use the following procedure:

1. Unwrap the foot control and discard the packing materials.

2. Grasp the chair by the chair back and/or seat frame and carefully slide the chair from the pallet onto the floor and into position.

**WARNING: Do not attempt to lift the chair by the motor bars. The motor shaft will be damaged (See Figure 5).**

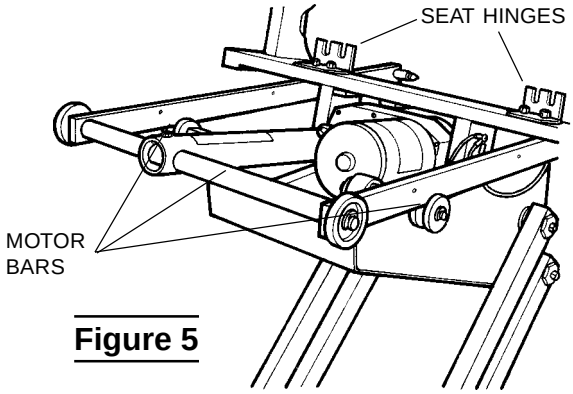



**Figure 5**

## 5. INSTALLATION OF PLATFORM COVERS

Before installing the platform covers, make sure the power cord is plugged in to an appropriate outlet. Be sure the foot control is unwrapped and ready for use (Refer to Section III, Para. 2). Use the foot control to raise the chair to its full up position. Install the platform covers using the following instructions:

1. Remove the four phillips head screws from the standoffs on both sides of the frame (See Figure 6).

2. Position the center platform cover onto the chair as shown.

3. Position the left and right platform covers so they will hold the center platform cover in place. Fasten with the phillips head screws.

**WARNING: After the covers are installed, check the Safety Bail (See Figure 6) and make sure it moves freely up and down to operate the base safety switch. This is important for safe and proper chair operation.**

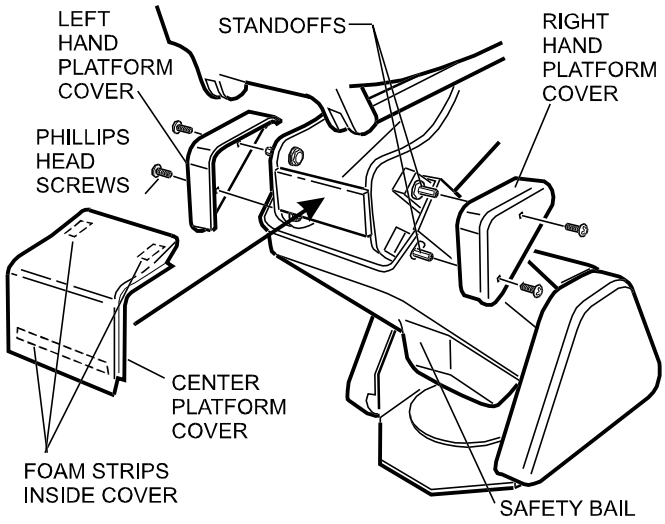



**Figure 6**

# SECTION II - INSTALLATION (CONT)

## 6. INSTALLATION OF STANDARD MAGNETIC HEADREST AND CUSHION

1. Remove the headrest from the small carton; discard any shipping materials.

2. Insert the headrest tang in the slot and adjustment bracket at the top of the chair back (See Figure 7). When properly adjusted, the headrest should move freely up and down, but should not move on its own.

NOTE

**The adjusting bracket tension is pre-set at the factory and should not require adjustment. If the movement of the headrest is out of adjustment use the following procedure:**
**1) Using an open end wrench, loosen the two locknuts on the side of the adjustment bracket.**
**2) Then, loosen or tighten the adjustment screws to achieve the desired tension and re-tighten the locknuts (Figure 7).**

3. The headrest cushion is held to the headrest by a magnet and can be positioned as desired (See Figure 8).

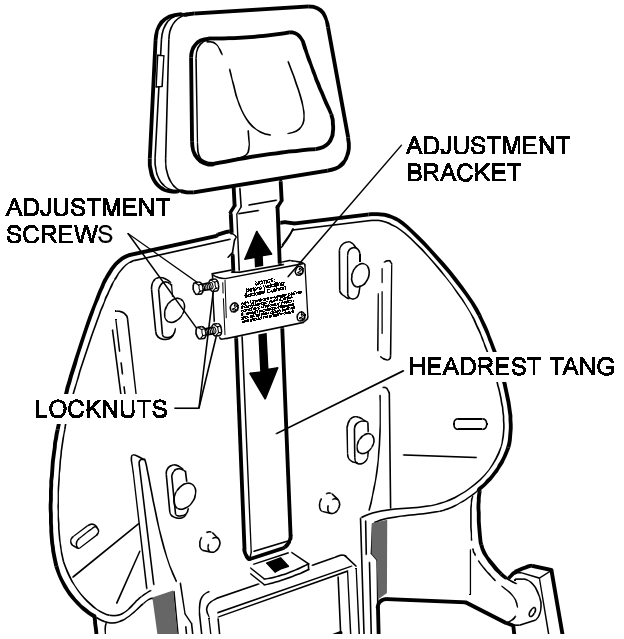



**Figure 7**

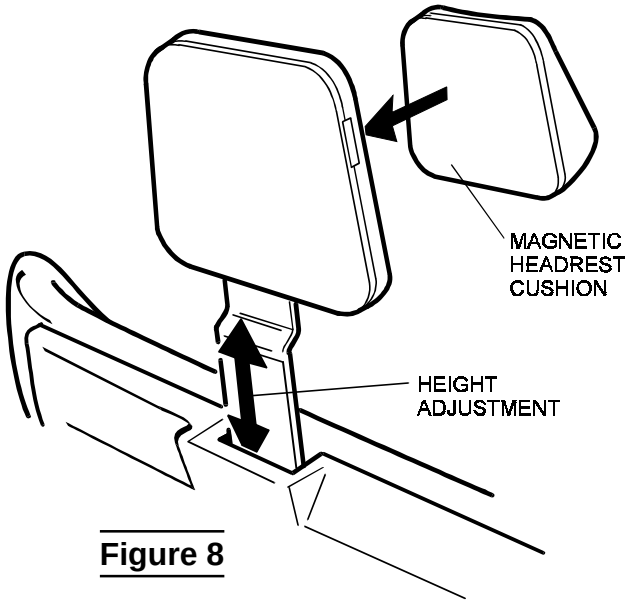



**Figure 8**

CAUTION

**CAUTION: Handle all upholstery with care. Do not bend the Headrest, Back or Seat Cushions as this may cause excessive wrinkles or distortion of the upholstery.**

NOTE

**NOTE: All Knight Chair upholstery is made from the highest quality materials available and is designed for maximum patient comfort, easy cleaning and durability. Knight Chair upholstery will provide years of service when correctly maintained according to the Operator and Care Manual. Like all fine upholstery some minor wrinkles, waves or changes may occur. These changes are natural and in no way effect the performance or life of the product.**

# SECTION II - INSTALLATION (CONT)

## 7. INSTALLATION OF CHAIR SEAT UPHOLSTERY

The seat is attached to the two hinges on the main cross member of the seat frame (See Figure 5). Use the following instructions:

1. Remove the seat from the upholstery box (the smaller box); be sure to handle the seat with care. Locate the hardware kit. Discard all shipping materials.

2. Raise the chair up to its highest position and recline the chair back to 45 degrees (Refer to Section III).

3. Insert the four 1/4-20 hex head screws in the bottom of the seat and hand tighten 2 turns.

4. Turn the two hinges up into a vertical position. Lower the seat onto the chair with the seat resting on the hinges (See Figure 9).

5. Rotate the hinges down toward the hex screws while allowing the screws to slide into the slots in the hinges (See Figure 10). Tighten the screws using a screwdriver or 3/8 inch socket.

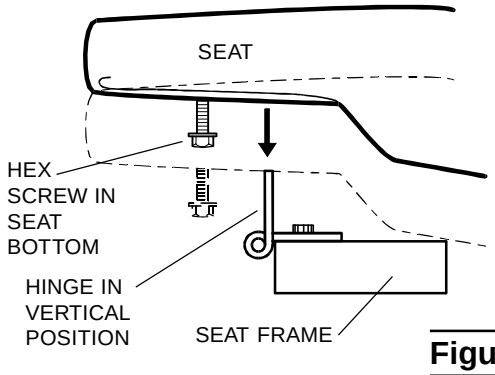



**Figure 9**

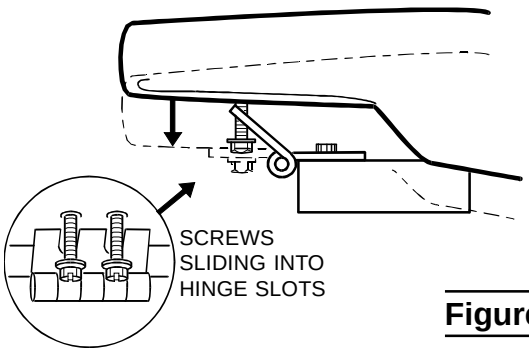



**Figure 10**

## 8. INSTALLATION OF CHAIR BACK UPHOLSTERY

The seat back is mounted over the four large head studs in the chair back (see Figure 11). Use the following instructions after first raising the back to a convenient height for installing the cushion.

1. Before installing the chair back cushion, turn the four cushion mounting studs counter clockwise until they are approximately 5/16 to 3/8 inches from the top of the boss (See Figure 11).

2. Position the chair back cushion on the chair back and align the four cushion mounting studs with the holes in the chair back cushion (See Figure 11).

3. With the chair back cushion held tight against the chair back, push downward to lock the cushion into place.

4. Secure the velcro strips on the cushion skirt to the velcro strips on the chair back. Smooth the skirt out with your hand to remove any wrinkles.

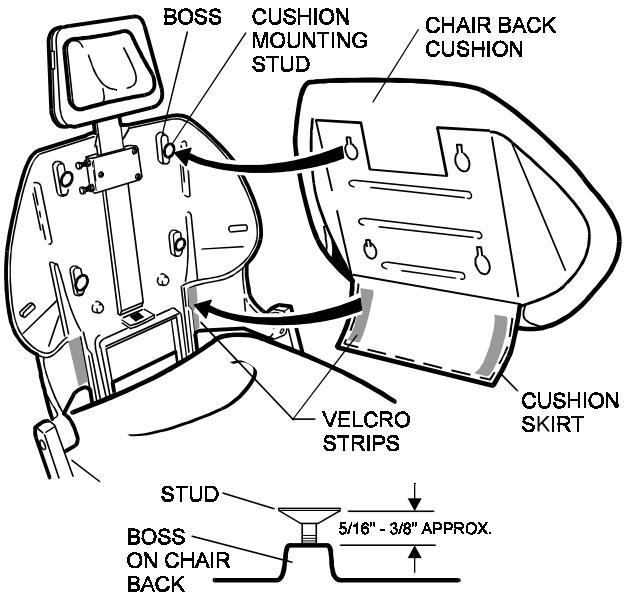



**Figure 11**

# SECTION II - INSTALLATION (CONT)

## 9. INSTALLATION OF ARMREST

The armrests are held in position by a set screw located in the back of the hip post. A pivot mechanism allows the armrest to swing out, while the armrest post remains stationary. Use the following procedure to install the armrests:

1. Unpack the armrests and discard all packing materials. The armrests are secured to the bottom of the small carton (Figure 12).

2. Insert the armrest post in the hip post, making sure that the right and left hand mounting positions are observed (See Figures 13 & 14).

3. Position the armrest parallel to the side of the chair and tighten the set screw (See Figure 13).

NOTE ▶ **NOTE: The set screw must be tighten with considerable force to keep the armrest post from turning. The armrest should pivot only at the pivot mechanism.**

NOTE ▶ **NOTE: We recommend disabling the swing out feature on the side of the chair opposite patient access. To lock the armrest and disable the swing out feature, remove the pivot screw and washer on the underside of the armrest and turn the stop plate 90⁰. Replace the pivot screw and washer and tighten (See Figure 14).**

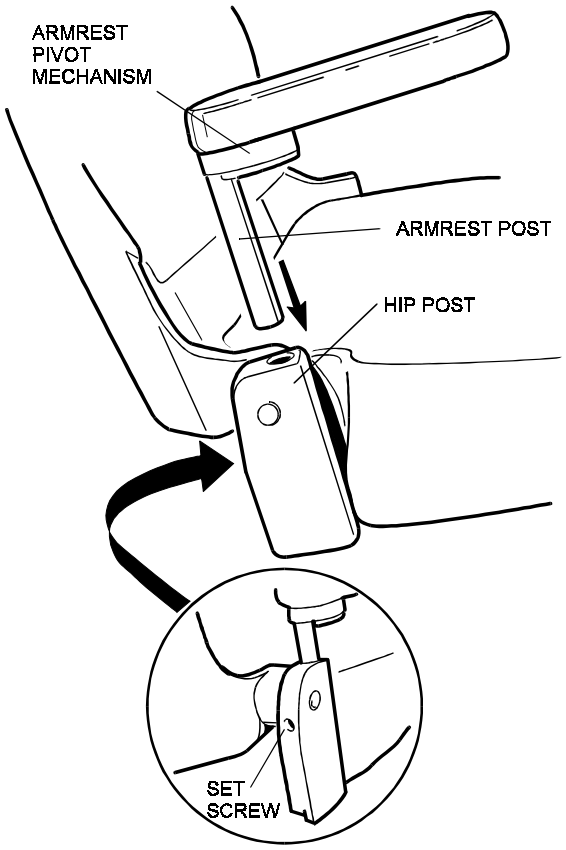



**Figure 13**

## 10. INSTALLATION OF OPTIONAL EQUIPMENT

If optional equipment was ordered with the chair, it should be installed in accordance with the instructions included in the optional equipment package.

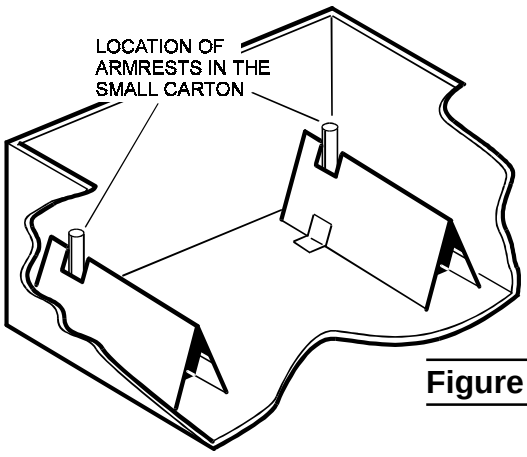



**Figure 12**

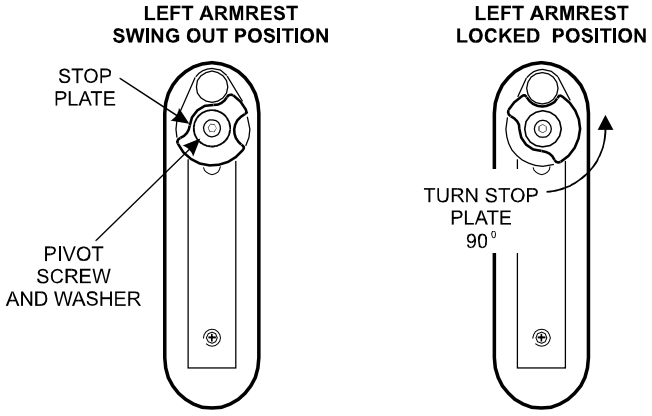



**Figure 14**

# SECTION III - OPERATIONAL CHECKS

**When the installation is complete, certain operational checks should be made, as follows:**

## 1. ROTATION LOCK RELEASE

To ensure that the chair rotates freely, unlock the manual rotation lock release (Figure 15). Press the left-hand knob to release the lock. Check that the chair rotates freely, and then lock the chair by depressing the right-hand side of the lock release. The chair will rotate a total of $90^0$ ($45^0$ on either side of the center line).

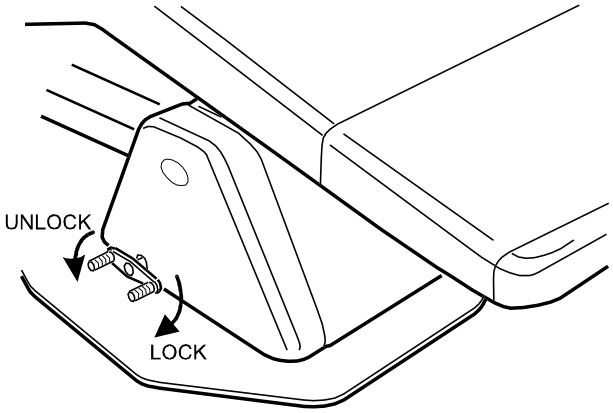



**Figure 15**

## 2. FOOT CONTROL OPERATION

The foot control (See Figure 16), consisting of a selector (toggle) switch and a control disk, is operated as follows:

- The Selector Switch toggles to the Operate (green) **or** Automatic Exit (yellow) positions

- The Operate position is actuated by pressing the selector switch to the position indicated in green. At this position the control disk is functional and the chair can be positioned as follows:
  1. Actuate and hold the control disk to the desired quadrant (See Figure 16). For example, sliding the disk to the left will actuate the back-down position.
  2. Two functions can be actuated simultaneously by sliding the disk in a diagonal direction. For example, Figure 17 illustrates the simultaneous actuation of the back-down and base-up functions.
  3. Releasing the disk stops the movement of the chair.

- The Automatic Exit position is actuated by pressing the selector switch to the position indicated in yellow. At this position the control disk is nonfunctional.

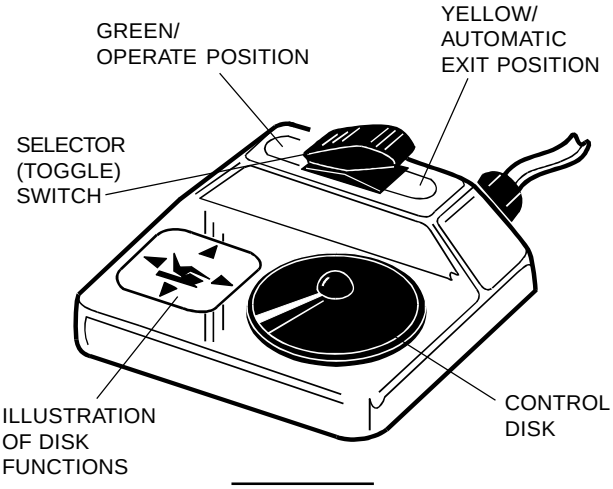



**Figure 16**

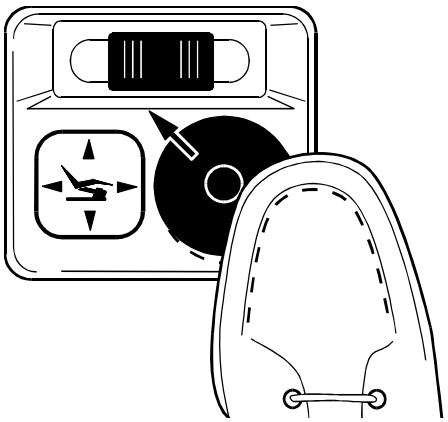


**Figure 17**

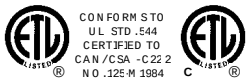
**WARNING: Once the Automatic Exit function is actuated, this function may be stopped by pressing the selector switch to the operate position.**

# SECTION IV - FINAL CHECK LIST

**When all the assembly and installation procedures are completed, the chair should be checked out in accordance with the following check list to ensure that assembly is complete and that all controls function properly.**

- ☐ Check all controls for proper operation.
- ☐ Check operation of safety bail.
- ☐ Check chair rotation, stops and locking functions.
- ☐ Check the armrests to ensure proper functioning and that the armrest post is secured an will not move.
- ☐ Be sure that the cushions are properly installed and the toeboard cover is in place.
- ☐ Check that the platform covers are installed.
- ☐ Be sure that all optional equipment has been installed.
- ☐ Check that all shipping tape and other packaging materials have been removed and disposed of.
- ☐ Make sure that the chair has been cleaned and that all dirt and finger prints have been removed.
- ☐ Be sure the person who will operate the chair receives the operators manual and any other appropriate information or instructions.

**120 Volt Chair Only**




**240 Volt Chair Only**

Return To Table Of Contents

# NOTES:

Return To Installation Section

# Operation and Care Manual

## The Biltmore Chair

**Model P**

**CONTENTS**

Introduction ..... 1
Label Definitions ..... 1
Controls and Components ..... 2
Requirements ..... 3
Operation ..... 4
Cleaning and Maintenance ..... 6
Warranty ..... 7

Return To Table Of Contents

Return To Table Of Contents

# Introduction

This publication is a user's manual containing all the information you will need to operate and care for your Biltmore Chair. Before operating your chair, please read this manual to become familiar with its special features and functions.

The Biltmore Dental Chair provides exceptional comfort and support during dental procedures. The chair is fully adjustable, from upright to beyond horizontal, to ensure maximum patient comfort and ready access to the patient by the operator.

Designed for reliability and simplicity of function, your chair will provide you with years of service with a minimal amount of maintenance.

# Label Definitions

**Hazards which result in severe personal injury or death.**

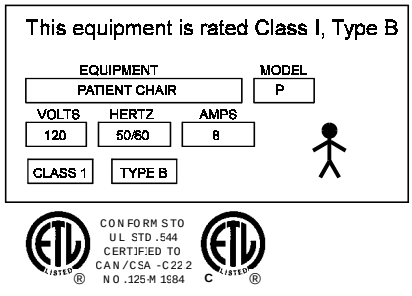
**Hazards which could result in personal injury.**

**Hazards which could result in equipment or property damage.**

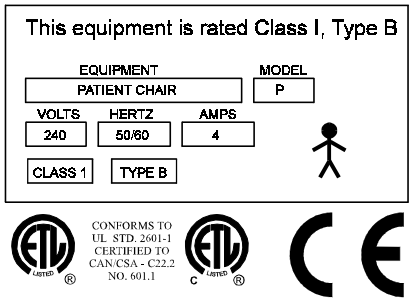
**Alert user to pertinent facts and conditions.**

**“DANGER - EXPLOSION HAZARD - DO NOT USE THIS EQUIPMENT IN THE PRESENCE OF FLAMMABLE ANESTHETICS”**

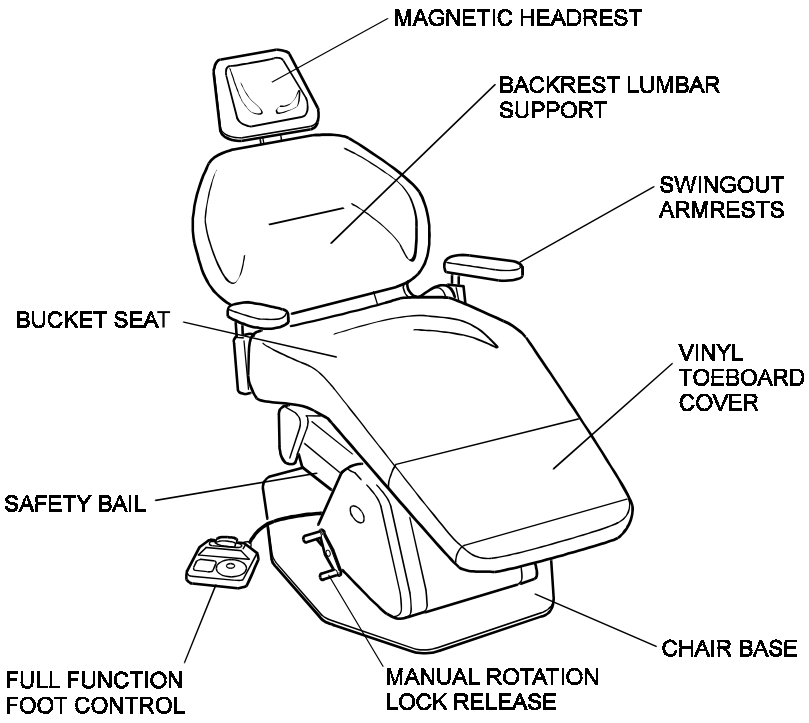
RATING FOR 120 VOLT CHAIR

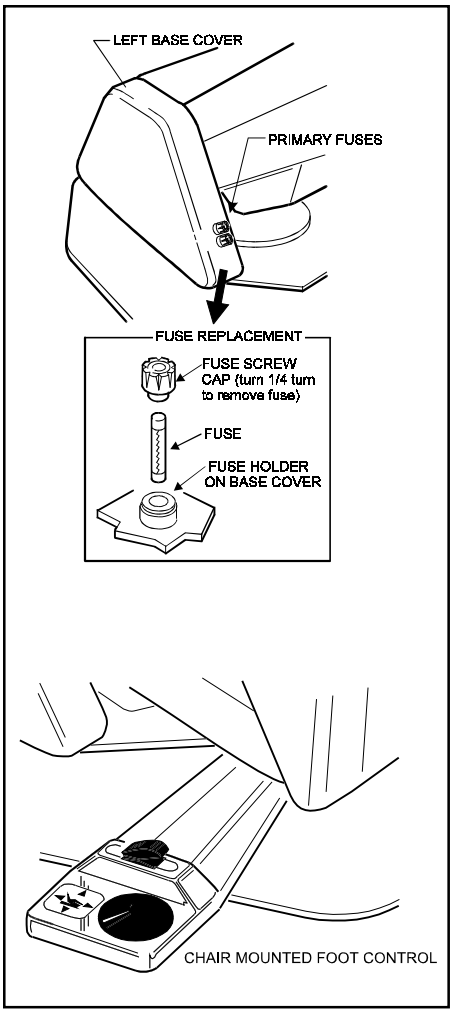



RATING FOR 240 VOLT CHAIR



# Controls and Components




**AVAILABLE ON EC MODELS**

The components and controls identified are described below. Read the descriptions carefully to familiarize yourself with these components

**MAGNETIC HEADREST** - provides comfortable support for the patient's head and neck throughout the dental procedure.

**BACKREST AND LUMBAR SUPPORT** - a contoured seamless seat and lumbar cushion support for the patient's back.

**BUCKET SEAT** - The seamless seat is contoured to ensure patient comfort throughout the dental procedure.

**SWING-OUT ARMRESTS** - provide easy access to or from the chair on either side.

**VINYL TOEBOARD COVER** - fits over the end of the bucket seat to protect the upholstery.

**MANUAL ROTATION LOCK RELEASE** - Located at the lower right side of the chair (can be relocated for left hand set up), this lever allows the operator to rotate the chair base up to 90$^{O}$ and lock it in place at the desired position.

**FOOT CONTROL** - controls the proper positioning of the chair. It also provides two automatic positions - auto exit and programmable operation.

# Requirements

## PHYSICAL REQUIREMENTS

The illustration below shows the basic space requirements of your Biltmore Chair. The chair should be at least 18 inches from the nearest wall, cabinet, or any permanent fixture when in the fully reclined position. Note that the chair seat moves forward 4-1/2 inches as the base is raised.

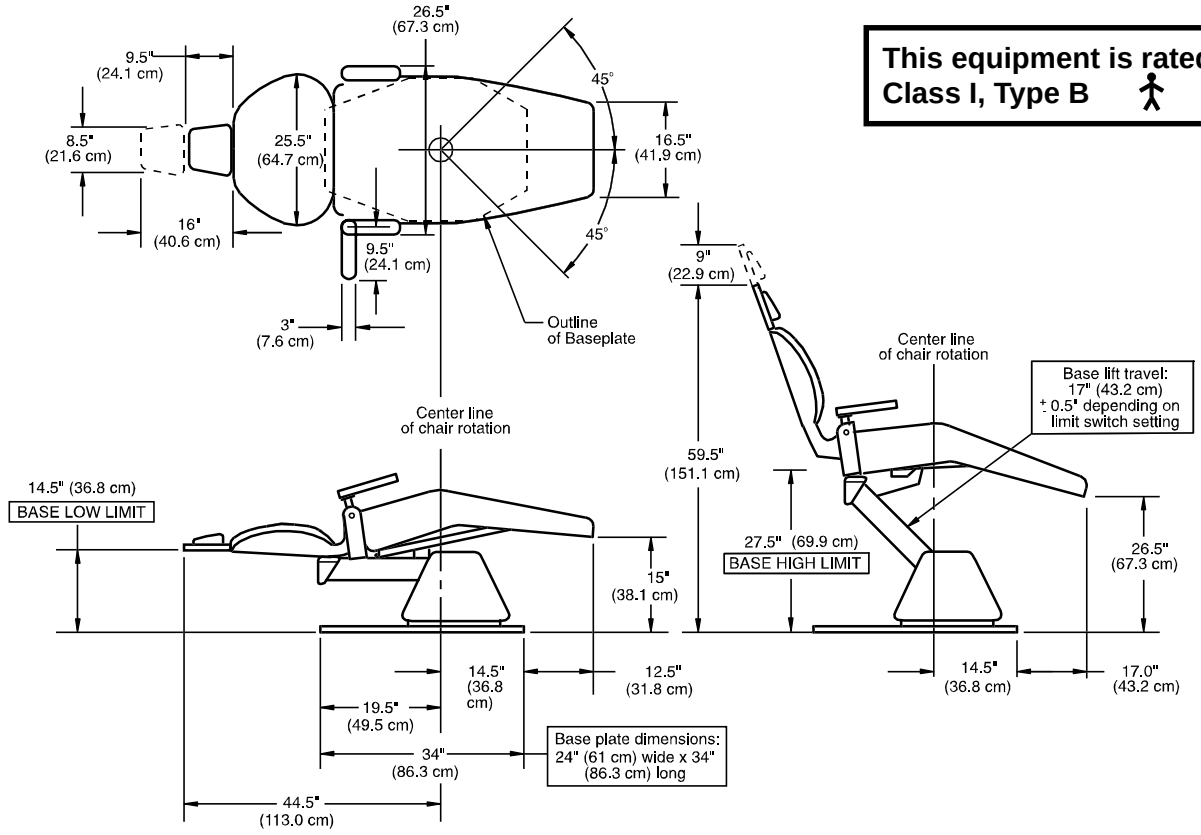
## ELECTRICAL REQUIREMENTS:

Before connecting the line cord to an appropriate receptacle, make certain that the circuit is protected by a 15-amp circuit breaker for 120-VAC models, or a 7.5-amp breaker for 240-VAC models. Ensure that all wiring is grounded and all electrical codes are observed.

***WARNING - Potential shock hazard with possible personal injury. To reduce shock hazard, observe all electrical codes.***

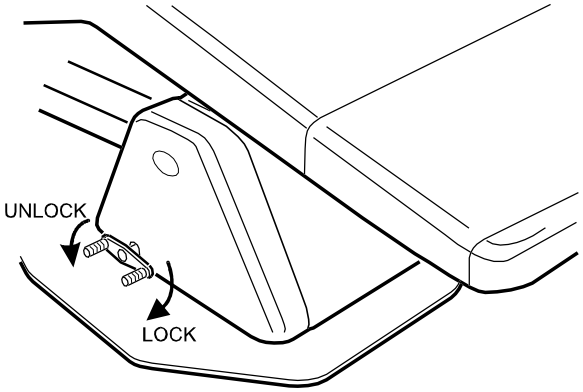
***WARNING - To disconnect power to the chair, you must unplug the power cord from the electrical outlet.***

**This equipment is rated Class I, Type B**


26.5" (67.3 cm)
9.5" (24.1 cm)
8.5" (21.6 cm)
25.5" (64.7 cm)
45°
16.5" (41.9 cm)
16" (40.6 cm)
9.5" (24.1 cm)
3" (7.6 cm)
Outline of Baseplate
9" (22.9 cm)
Center line of chair rotation
Base lift travel: 17" (43.2 cm) ± 0.5" depending on limit switch setting
59.5" (151.1 cm)
14.5" (36.8 cm) BASE LOW LIMIT
27.5" (69.9 cm) BASE HIGH LIMIT
26.5" (67.3 cm)
15" (38.1 cm)
14.5" (36.8 cm)
12.5" (31.8 cm)
19.5" (49.5 cm)
34" (86.3 cm)
Base plate dimensions: 24" (61 cm) wide x 34" (86.3 cm) long
44.5" (113.0 cm)
14.5" (36.8 cm)
17.0" (43.2 cm)

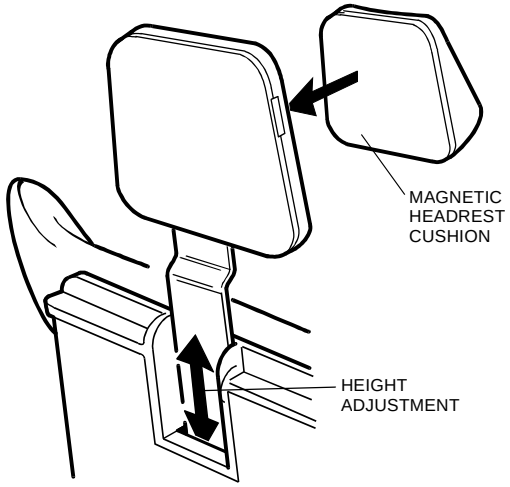
# Operation

The Biltmore Chair is designed for convenient operation. This section will explain in detail the functions of the electrical and manual controls. Refer to page 2 for a general description and location of these controls.



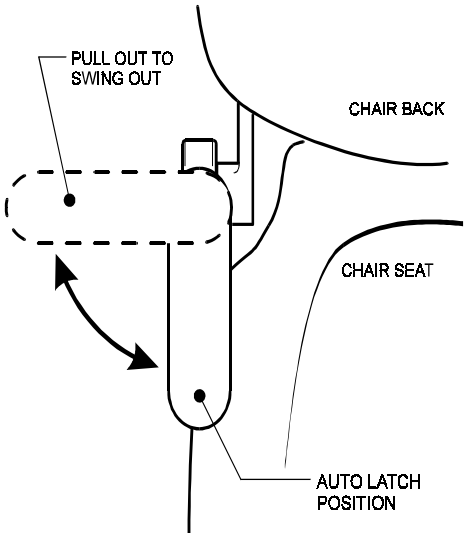

## ROTATION LOCK RELEASE

The chair will rotate at its base a total of $90^0$ ($45^0$ on either side of the center line) Press the left hand side of the rotation lock release and rotate the chair to the desired position. Lock the chair in place by depressing the right-hand side of the lock release.




## STANDARD MAGNETIC HEADREST

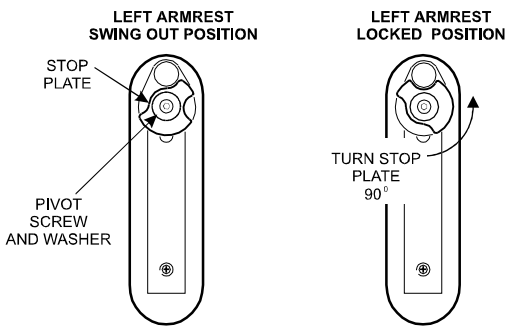
The headrest height can be easily adjusted by simply pulling out or pushing in on the headrest assembly. The cushion is held to the headrest by a magnet and can be positioned as desired.



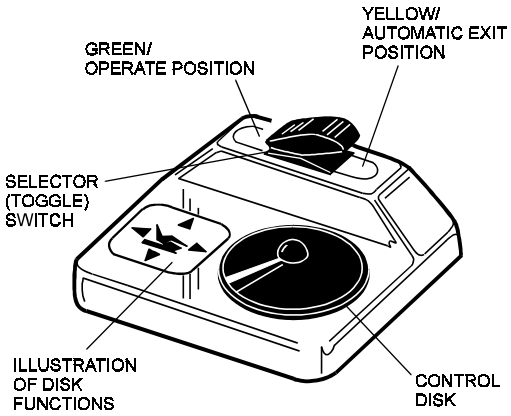

## SWING OUT ARMREST

Grasp the armrest and pull out away from the chair. With the patient seated, push the armrest back until it latches.

We recommend disabling the swing out feature on the side of the chair opposite patient access. To lock the armrest and disable the swing out feature, remove the pivot screw and washer on the underside of the armrest and turn the stop plate $90^0$. Replace the pivot screw and washer and tighten.



# Operation




## FOOT CONTROL OPERATION

The foot control consisting of a selector (toggle) switch and a control disk, is operated as follows:

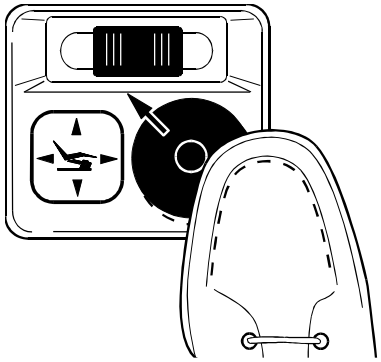
- The Selector Switch toggles to the Operate (green) **or** Automatic Exit (yellow) positions

- The Operate position is actuated by pressing the selector switch to the position indicated in green. At this position the control disk is funtional and the chair can be positioned as follows:

  1. Actuate and hold the control disk to the desired quadrant. For example, sliding the disk to the left will actuate the back-down position.

  2. Two functions can be actuated simultaneously by sliding the disk in a diagonal direction. For example, the illustration shows the simultaneous actuation of the back-down and base-up functions.

  3. Releasing the disk stops the movement of the chair.



- The Automatic Exit position is actuated by pressing the selector switch to the position indicated in yellow. At this position the control disk is non-funtional.

***WARNING: Once the Automatic Exit function is actuated,this function may be stopped by pressing the selector switch to the operate position.***

# Cleaning and Maintenance

After installation has been completed, thoroughly clean the chair and upholstery. After the initial cleaning, it should be cleaned as necessary and **at least weekly**. Observe the following instructions.

***A NOTE ABOUT THE UPHOLSTERY: All Knight Chair upholstery is made from the highest quality materials available and is designed for maximum patient comfort, easy cleaning and durability. Knight Chair upholstery will provide years of service when correctly maintained according to the Operator and Care Manual. Like all fine upholstery some minor wrinkles, waves or changes may occur. These changes are natural and in no way effect the performance or life of the product.***

## CLEANING THE UPHOLSTERY

When cleaning upholstery, it is suggested that you use all recommended commercial cleaning agents in an inconspicuous spot to check for potential damage to the upholstery material before applying to the entire area to be cleaned. For everyday cleaning, we recommend a mild dish washing liquid, warm water, and a damp white cloth. Spraying upholstery with a silicone-based coating will improve luster and soil resistance.

## CLEANING PAINTED SURFACES

The painted metal surfaces are covered in durable, powder-coated paint which is resistant to scratching and scuffing. It may be cleaned with a clean cloth dampened with mild, soapy water. To add luster and dirt resistance, use a pre-softened car wax

## RECOMMENDED INFECTION CONTROL PRODUCTS

The disinfectant/cleaner products that we have tested and recommend for our upholstery, painted items and plastic covers are as follows:

**Cavicide**
distributed by E&D Dental Products Inc., Westfield, NJ

**Precise - Hospital Foam Cleaner Disinfectant**
manufactured by Caltech Industries, Inc., Midland, MI

***CAUTION: Follow manufacturer's directions for concentration and application of disinfecting material. Avoid prolonged application of any disinfectant/cleaner products, because they may cause staining of upholstery material.***

## TROUBLESHOOTING

Only in case of no power to the chair should dental personnel attempt to remedy the problem. In this case, (1) make sure that the power cord is firmly plugged into the receptacle or (2) check that the main circuit breaker to the chair is turned on.

***CAUTION: All troubleshooting and maintenance on the chair should be performed by a qualified technician. Dental personnel must not attempt to perform any maintenance functions on the chair, attempt to replace any fuses or other electronic components, or attempt to gain access to the motors or other units.***

## LUBRICATION

After extended use your chair may require lubrication at pivot joints (i.e. chair back pivot joint). Lubricate the joints with a drop of light weight oil or silicone lubricant.

# Warranty

**WARRANTY**

**Knight by Midmark products are warranted against defect in material and workmanship for a period of 2 years, unless otherwise indicated in writing, from the time of delivery.**

Exceptions:

1) "KINK-VALVE" module carries a 10 year warranty.
2) The original light bulb on a new light carries a 1 year warranty.
3) Accessories not manufactured by Knight are excluded (i.e. Fiber optic systems, Scalers, Electric micromotor systems, Curing light systems, X-ray viewers, etc.)
4) Replacement parts and accessories carry a 90 day warranty.

Knight's sole obligation under the warranty is either to provide parts for the repair or to provide the replacement product (excluding labor and shipping). The buyer shall have no other remedy. All special, incidental and coincidental damage is excluded. Written notice of breach of warranty must be given to Knight within the warranty period.

The warranty does not cover damage resulting from improper installation or maintenance, accident or misuse. The warranty does not cover damage resulting from the use of cleaning, disinfecting or sterilization chemicals and processes.

**No other warranties as to merchantability, fitness for use or otherwise are made.**

# Notes

Return To Table Of Contents

Return To Table Of Contents

# DECLARATION OF CONFORMITY

## MIDMARK CORPORATION

Midmark Corporation declares that Model N and Model P Chair conforms to the applicable requirements of the Medical Device Directive 93/42/EEC, Annex VII.

Serial Numbers: CN0784 and CP0662 to present.

**Quality Assurance Manager**

Gene Harshbager
Midmark Corporation
60 Vista Drive PO Box 286
Versailles, OH 45380 U.S.A.
October 18, 1999

**TPW1770 Rev. B (10/99)**

KA940800

Knight®
by Midmark

Midmark Corporation • P O Box 286 • 60 Vista Drive
Versailles • Ohio • 45380-0286 • www.midmark.com
Phone: 937-526-3662 Fax: 937-526-5542